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ABSTRACT

The Silver Drawing Test (SDT) and Draw A Story (DAS) test were designed to reveal a person's cognitive and emotional conditions. How these tests were developed and some of the research concerning their efficacy are detailed in this report. It opens with an overview of the SDT. The report then discusses recent studies on the test: "Sex and Age Differences in Attitudes toward the Opposite Sex," "Gender Differences and Similarities in Spatial Abilities of Adolescents," and "Gender Parity in Spatial Skills." Some unpublished research is also detailed: "Brazilian Standardization of the SDT," "Comparing the SDT with Four Diagnostic Instruments," and "Age and Sex Differences in Fantasies about Food and Eating." Included with these unpublished works on the SDT are masters' theses written since 1988. Summaries of other research examining reliability, validity, outcome studies, age and gender differences, as well as work with hearing-impaired children and learning-disabled children are also presented. The second part of the document analyzes the Draw A Story: Screening for Depression (DAS) test. It presents critical studies of the test published after 1993: "Identifying and Assessing Self-Images in Drawings by Delinquent Adolescents," "Sex Differences in the Solitary and Assaultive Fantasies of Delinquent and Nondelinquent Adolescents," and "Adapting the Silver Draw A Story Assessment." The unpublished studies in this section include "The Draw A Story in Assessment of Abuse and Assessment of Brain-Injury Patients with Draw A Story Instrument." and various masters' theses produced within the last 8 years involving DAS. Previous research on both tests is examined for its reliability, validity and correlations between the Silver Drawing Tests and Draw A Story. The findings suggest that the SDT and DAS assess the same constructs, which means that the SDT, like the DAS, can be used to screen for depression and that the DAS, like the SDT, can be used to assess levels of ability to select, combine, and represent. (MKA)

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Updating the *Silver Drawing Test* and *Draw A Story* Manuals

New Studies and Summaries of Previous Research

Rawley Silver, Ed.D., ATR-BC, HLM

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In addition, I would like to say thank you again to the many art therapists, teachers, and others who participated in studies during the past twenty years by administering and scoring the tests. Their contributions made the studies possible, and are most gratefully acknowledged.

Updating the *Silver Drawing Test* and *Draw A Story* Manuals

The purpose of this update is to bring together and summarize the journal articles and research studies performed after the *Silver Drawing Test* and *Draw A Story* were last published. In addition, their findings of reliability and validity, outcome studies, and studies of distinct populations will be summarized.

1. The *Silver Drawing Test of Cognition and Emotion (SDT)*

The *SDT* assesses the cognitive and emotional content of responses to drawing tasks. It includes three drawing tasks: Drawing from Imagination to assess attitudes toward self and others, as well as ability to select, combine, and represent; Drawing from Observation to assess concepts of space; and Predictive Drawing to assess concepts of horizontality, verticality, and sequential order.

Responses are scored on 5-point rating scales. The cognitive scales range from low (1 point) to high (5 points) levels of cognitive skill. The emotional content scales assess responses to the Drawing from Imagination task which asks respondents to select two subjects from an array of 15 stimulus drawings, imagine something happening between the subjects they choose, show what is happening in drawings of their own, then add titles or stories. They are encouraged to change the stimulus drawings and add their own ideas. The emotional content scales range from strongly negative themes or fantasies, such as drawings about sad or helpless subjects (1 point), to strongly positive themes, such as drawings about loving relationships (5 points). The intermediate 3-point score is used for ambivalent, ambiguous, or unclear themes, and the intervening scores of 2 and 4 points, for moderately negative and moderately positive themes.

The *SDT* is based on the premise that cognitive skills can be evident in visual as well as verbal conventions, and that these skills, traditionally identified, assessed, and developed through words, can also be identified, assessed, and developed through drawings. It evolved from a belief that the intelligence of children and adults who have poor verbal skills is often underestimated.

Recently, the *SDT* was criticised for not explaining how its "drawing items" were selected. Somehow, I had neglected to include my own early studies in the manual's background literature.

How the Drawing Tasks Evolved

The tasks were first used with children who had severe receptive or expressive language disorders; some had both, and many had hearing loss and emotional problems as well (Silver, 1973). It was generally assumed that improving their verbal skills would improve their thinking. It seemed to me, however, that drawing could be used to develop the three concepts cited by

Jean Piaget (1970) to be fundamental in logical and mathematical thinking: concepts of space, sequential order, and class inclusion.

The concept of a class requires the ability to make selections, associate them with past experiences, and combine them into a context. This concept seemed particularly important for my students because linguists had defined language as the ability to select words and combine them into sentences (Jakobson, 1964). In an attempt to bypass their language disabilities, I asked the students to select images and combine them into the nonverbal context of drawings.

To develop spatial concepts, the students drew toys and other objects from different points of view, and painted sequences of tints or shades, such as adding more and more white or red to blue. They also modelled clay to create sequences, and manipulated objects to test out their predictions.

Then I applied for a State Urban Education Project grant. Approval arrived late, after the 1972 school year started in September. Since pretests were scheduled for October, the project Evaluator had not yet been assigned, and no one else was available, I was obliged to improvise a 30-item criterion referenced pre-test. It included drawing from imagination, drawing from observation and predictive drawing, which were approved for the Project's post-tests (Silver, 1973). Later on, the drawing tasks and developmental techniques were adapted for use with stroke patients (Silver, 1975a), students with learning disabilities (Silver, 1975b and 1975c), and unimpaired students.

The *SDT* was first published by Special Child Publications in 1983. Revised editions were published by Ablin Press in 1990 and in 1996.

Studies Published After 1996

Sex and Age Differences in Attitudes Toward the Opposite Sex

This journal article examined fantasies about the opposite sex expressed by children, adolescents, and adults in responding to the Drawing from Imagination task (Silver, 1997). Although previous studies found that respondents tend to draw pictures about subjects the same gender as themselves, some chose subjects of the opposite sex, portraying them negatively (Silver, 1992, 1993b). The present study examined attitudes toward opposite-sex subjects found in a sample of 480 children, adolescents, and adults. Opposite-sex drawings were grouped by age and gender, scored on a rating scale adapted from the *SDT* Self-image and Emotional Content scales, and analyzed.

Several age and gender trends emerged. Approximately one in four (116) of the 480 respondents drew pictures about opposite-sex subjects, the proportions increasing with age. More men than women drew pictures about subjects of the opposite sex whereas the reverse was found among children and adolescents, both girls and boys. The analysis of variance found males significantly more negative than females (the male mean score was 2.35; the

female mean score, 2.94 ($F(1,112) = 6.92, p < .01$). An age difference of borderline significance also emerged. The children and adolescents were more negative than the adults ($F(1,112) = 2.77, p < .10$). There was no interaction.

Both genders expressed more negative than positive feelings toward the opposite sex, peaking at the moderately negative 2-point level, portraying principal subjects as ridiculous or unfortunate. Although most associations with the opposite sex were negative, one was positive.

If it is typical to express positive attitudes toward self-images, as found in previous studies, then the reverse could be expected in attitudes toward others. Although males expressed significantly more negative feelings than females, it is not necessarily evidence of misogyny, but is consistent with previous findings that more males than females drew pictures about assaultive relationships. It was suggested that drawings about the opposite sex may provide access to troubling relationships, conflicts, and opportunities for clinical discussion and intervention.

Gender Differences and Similarities in Spatial Abilities of Adolescents

It seems to be generally agreed that males excel in spatial ability (McGee, 1979), and according to Moir and Jessel (1992), male superiority is not only confirmed but not even in dispute. Nevertheless, this study (Silver, 1996b) asked if gender differences in spatial ability are found in responses to the *SDT* Predictive Drawing and Drawing from Observation tasks. Subjects included 33 girls and 33 boys, ages 12 to 15, attending public schools in Nebraska, Pennsylvania, and New York. Their mean scores were analyzed using a computation of T-test scores. No significant gender differences in spatial ability were found. In Drawing from Observation, the mean scores of girls were stronger in ability to represent depth, but the probability was less than 0.10.

Possible explanations were offered for the finding of no significant gender difference in spatial ability. Investigators who found gender differences tended to present manipulative tasks rather than drawing tasks, and it was suggested that additional samples of adult respondents might clarify the contradictory findings.

Gender Parity and Disparity in Spatial Skills: Comparing horizontal, vertical, and other task performances by adolescents and adults

This study asked whether different procedures (scoring success and failure vs scoring the level of cognitive skills) can explain why some studies found males superior in spatial ability while others found no gender differences (Silver, 1998). Some responses to the Predictive Drawing horizontality and verticality tasks, scored previously on the 5-point cognitive level scale were rescored in terms of success or failure. Only those respondents who drew horizontal lines in the tilted bottle (5 points) or vertical houses on the hill (5 points), were deemed successful.

Participants included 88 male and 88 female adolescents and adults. The adolescents had participated in the previous study. The adults included 26 men and 26 women, ages 18-50 (mean age 26) who had participated in studies reported in the 1996 *SDT* manual, a class of college freshmen in Nebraska, a college audience in New York, and residents of a detention facility in Missouri.

No significant gender differences were found either in success-failure scores or cognitive level scores. Chi-square analysis indicated that both males and females had lower scores in verticality than horizontality, more males than females. The findings supported the previous study, and suggested that perhaps some investigators had assessed knowledge of physics rather than Piagetian concepts of space.

Unpublished Studies

Brazilian Standardization of the *SDT*

Allessandrini, Duarte, Dupas, & Bianco (1996) standardized the *SDT* on approximately 2,000 Brazilian children and adults, as reported in a Pre-conference Course at the 1996 Conference of the American Art Therapy Association. The children, ages 5 to 17, included subgroups based on grade, sex, and school: public and private, elementary and secondary schools. The adults, ages 18 to 40, were grouped on the basis of educational background. Group 1 ranged between illiteracy and the 6th grade, Group II had attended high schools. Group III had attended colleges. Each subgroup included at least 35 subjects.

An analysis of variance yielded differences in school grade and type of school, both at the .001 level of significance. The trend of growth in mean scores was similar in both cultures, increasing gradually with age and grade level. Private school students had higher scores than public school students.

Adults whose education had been limited to elementary or high schools had lower mean scores than most children, as well as the adults who attended college. They matched 7 to 8 year-old children in mean score performances. High school graduates matched adolescents ages 12-14. College graduates were superior to high school seniors.

Interscorer and test-retest reliability were also examined. Three judges, working independently, scored responses by 32 children in all school grades. The correlation coefficients were 0.94, 0.95, and 0.95 in total *SDT* scores, indicating strong interscorer reliability. In retest reliability, the correlation coefficients were 0.84, 0.62, 0.69, and 0.87, suggesting temporal stability.

Comparing the *SDT* with Four Diagnostic Instruments

In a series of case studies, Horovitz-Darby (1996) compared test performances on the *SDT* with performances on the *Kinetic House Tree Person* (Burns, 1987), *Kinetic Family Drawing* (Burns & Kaufman, 1972), *House Tree*

Person (Buck, 1950), and *Cognitive Art Therapy Assessment*, (Horovitz- Darby, 1994). Results indicated that levels of cognitive development were the same, regardless of the test instrument used.

Age and sex difference in fantasies about food and eating

Although only two of the 15 SDT stimulus drawings are related to food or eating (the soda and the refrigerator), there seemed to be a tendency among adolescent girls to choose these subjects. Since eating disorders are becoming more common in the United States and elsewhere, the study asked whether fantasies about food appear more often in responses by adolescent girls than other age and gender groups, possibly reflecting masked anorexia nervosa, bulimia, or binge-eating.

Responses to the Drawing from Imagination task by 293 children, adolescents, and adults in previous studies were reexamined. The children, ages 9 to 10, attended fourth-grade in one private and two public schools in New Jersey, Pennsylvania, and New York. The younger adolescents, ages 12 to 15, attended grades 7 to 10 in five public schools in Nebraska, New York, and Pennsylvania. The older adolescents, ages 16 to 18, were high school seniors in two public high schools in New York. The adults, ages 19 to 70, included a class of college students in Nebraska, adults in college audiences in Idaho, New York and Wisconsin, and older adults living independently in their communities in Florida. The SDT had been administered and scored by teachers and art therapists, including the author.

Of the 293 respondents, 85 (29%) drew fantasies about food or eating. (20 children, 40 adolescents, and 25 adults) ; 59 were female, 26 were male. Proportionally more females than males drew fantasies about food in each of the four age groups, as shown in Figure 1.

Among females, the largest proportion of drawings about food was found among older adolescents ages 16 to 18: 15 of the 32 girls in this sample (46.9%). The next largest proportion, 34.4%, was found among both groups of younger girls, 11 of the 32 girls ages 9 to 10, as well as 11 of the 32 ages 13 to 15. Of the 79 women, 22 (27.9%) drew fantasies about food and eating.

The group of older adolescent girls seemed more preoccupied with food than all other age and gender groups. Among males, the largest proportion was found in the sample of younger adolescents ages 13-15, (29.4%), followed by boys ages 9-10 (25%); then by adolescents ages 16-18, (22.2%); and finally, by men (10%).

The most notable gender difference was in the proportion of responses that were ambivalent, ambiguous, or unclear (3 points): 45% of the women and girls, compared with 23% of the men and boys scored 3 points. Examples are shown in Figure 2, "The Sneaky Snacker," by a girl age 9, and Figure 3, "I tell her not to eat sugar/then I do," by a young woman.

Figure 1. Age and Sex differences in Fantasies about Food and Eating

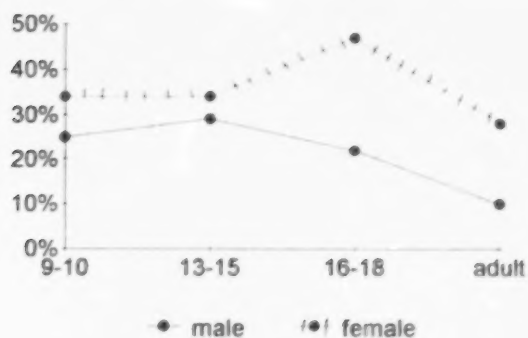


Figure 2. The Sneaky Snacker by a nine-year old girl.

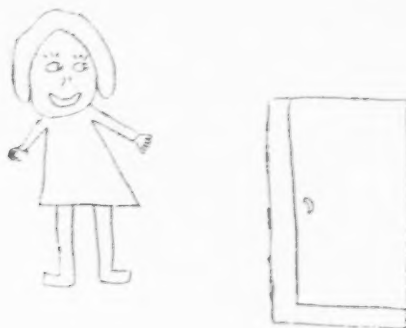


Figure 3. "I tell her not to eat sugar/then I do," by a young woman



These findings suggest that responses to the Drawing from Imagination task about food or eating may serve to uncover masked eating disorders, and that further investigation may be worthwhile.

Master's Theses

Blasdel (1997) explored and assessed the impact of creative art experiences on the critical thinking skills of inner city students in the fifth grade. She hypothesized that experiential learning through the manipulation of art materials builds higher-order thinking, allowing the synthesis of knowledge and engagement in critical thinking skills. Critical thinking is defined as logical analysis and creative construction leading to effective problem solving skills.

The experimental and control groups were pre- and post-tested with the *SDT Predictive Drawing* and *Drawing from Imagination* subtests as well as the *Cornell Critical Thinking Test* (Level X). The Cornell test is a multiple choice test designed to measure what to believe, and do, in a specific situation. Although statistical significance was not achieved, extending the involvement in art experiences could yield evidence supporting the value of art experiences in building critically thinking individuals.

This study was awarded first place in the 1997 paper competition of the Kansas Psychological Foundation.

Henn (1990) examined the question whether an integrated approach to teaching can have a significant effect on the understanding of horizontal, vertical, and depth relationships by multiply handicapped students. She worked with 24 students, ages 16 to 21, using the Drawing from Observation task as a pre- post -test measure. Interscorer reliability correlations were .95 for horizontal relationships, .86 for vertical relationships, and .84 for relationships in depth. A correlation of .92 was found for combined gains on the three variables. Post-test scores were significantly higher than pre-test scores ($t = -2.96, p = <.0058$).

Hiscox (1990) hypothesized that learning disabled students would fall within the normal range on IQ tests that were not based on language. She administered the *California Achievement Test (CAT)* and the *SDT* to 14 learning disabled, 14 reading-disabled, and 14 unimpaired children in the third, fourth, and fifth grades. Results supported the hypothesis. On both tests, the unimpaired children had the highest mean scores. The learning disabled group had higher mean scores than the reading-disabled who performed within the middle range of both groups. The difference in the mean and standard deviation between groups validated the rejection of the null hypothesis at the .05 level of significance.

Hunter (1992) compared scores of 65 college men and 128 college women, ages 15 to 53, in Australia, using five measures, including the *SDT*. Women appeared to perform better in Drawing from Imagination and Drawing from Observation. The contrast of gender using the multivariate set of DVs was significant ($F(1,150)=5.8, p < .001$). The associated univariate *F* test for Drawing from Imagination was significant ($F(1,150)=13.3, p < .001, \text{Eta}^2=.08$), as was Drawing from Observation ($F(1,150)=7.7, p < .006, \text{Eta}^2=.05$). She observed that the findings are consistent with the *SDT* theory that cognitive skills evident in verbal conventions can be evident also in visual conventions, and that gender differences should be considered in developing course methodology in order to facilitate learning.

Marshall (1988) worked with 9 learning disabled children using the *SDT* and a second measure to determine whether abilities improved. The mean total scores of the younger children in Group A increased from 16.46 to 21.09, gaining in each of the subtests. The most marked and consistent gain was in Drawing from Imagination. The adolescents in group B showed little gain, total mean scores increasing from 25.50 to 26.0.

Summaries of Previous Research

It has been erroneously stated that research information on the *SDT* is not available, and that it is not known whether teachers or mental health professionals need training in order to administer and score the *SDT*.

In response to these assertions, summaries of the reliability and validity studies, and other findings, are presented below. For detailed information, the reader is referred to the original publications listed in References, or the 1988, 1990, and/or 1996 manuals. The last manual received the 1996 Research Award from the American Art Therapy Association, the fourth such award for studies using the *SDT*.

Reliability

To determine scorer reliability, three studies were undertaken. In one, seven judges blindly scored *SDT* responses by six children. The correlation coefficients were .93 in Predictive Drawing, .91 in Drawing from Observation, and .96 in Drawing from Imagination, indicating strong reliability.

In another study, five judges blindly scored responses to the Drawing from Imagination Task by 15 children, adolescents, and adults selected at random. Using the statistic Intraclass Correlation (ICC), the correlation coefficients were .94 for Emotional Content and .74 for Self-Images, again showing reliability.

In the third study, six judges rated pre-test post test scores of eleven learning-impaired children in the study by Silver & Lavin (1977) summarized later on. The reliability coefficient was .852 for ability to form groups (select and

combine) and .944 for spatial orientation. The obtained coefficients indicated that the six judges had a similar frame of reference and displayed a high degree of agreement in scoring the tests.

To determine test-retest reliability, Moser (1980) administered the *SDT* twice to 12 learning disabled adolescents after an interval of one month. All coefficients were significant at the .05 level (.80 in Predictive Drawing, .84 in Drawing from Observation, and .56 in Drawing from Imagination).

To determine whether training is needed in order to administer and score the *SDT*, three studies were conducted. None of the teachers or mental health professionals who administered and scored the *SDT* were trained to use it; all relied on the test manual guidelines.

In the first study, an art therapist administered the test and scored responses by 20 fourth-graders and 16 tenth-graders. Their test booklets were then scored blindly by the author (who had not met the art therapist). All correlation coefficients were significant, five at the .01 level (ranging between .65 and .86), and one at the .05 level (.45 in Drawing from Observation).

In the second study, another registered art therapist administered the test to nine mentally handicapped, hospitalized adults, then scored responses which were again scored blindly by the author. All correlation coefficients were significant at the .01 level (Predictive Drawing, .99; Drawing from Observation, .89; Drawing from Imagination, .91; total scores, .96).

In the third study, a classroom teacher, a psychotherapist, a graduate student in art therapy, and two art therapists scored test performances by ten children. None of the scorers had met the author. Significant correlations were found at the .01 level ($r = .66$). These findings seem to indicate that training for teachers and mental health professionals is not needed.

Validity

To determine the validity of the *SDT*, its relationships to ten traditional tests have been examined.

Otis Lennen School Ability Test, Metropolitan Reading Achievement Test, SRA Math Achievement Test, Iowa Test of Basic Skills, WISC Performance IQ, and Canadian Cognitive Abilities Test

Although significant correlations were found between each of these tests and various *SDT* subtests, the reliability coefficients were low, ranging between -.15 (SRA Math) and .55 (Iowa). It should be noted that these tests are weighted with verbal items which do not appear in the *SDT*, and the *SDT* may tap cognitive skills not measured by these tests. Although all are measures of intelligence, they use different assessment techniques and emphasize language and visuo-spatial skills to different extents.

SRA Reading Achievement Test

Hayes (1978) examined correlations between the scores of 75 children on the SDT and the SRA Reading achievement Test. In *Drawing from Imagination*, the correlation coefficients were .945 for 25 first graders, .657 for 25 second graders, and .668 for 25 third graders, all significant at the .05 level of probability. The correlations between reading ability and the SDT were stronger for girls than boys in the 2nd and 3rd grades. In *Drawing from Observation*, the correlation was significant for third graders only. In *Predictive Drawing*, the correlation was significant for first graders only.

Draw-A-Man, Bender, and the Verbal and Performance scales of the Wechsler Adult Intelligence Scale (WAIS)

As reported in her doctoral dissertation, Moser (1980) administered the SDT to 70 learning-disabled and non-disabled adolescents. In comparing SDT scores of the learning-disabled respondents, with their scores on the other tests, she found significant correlations at .01 and .001 levels of probability, between SDT total and subtest scores and scores on the *Draw a Man* and the *WAIS Performance* scale, suggesting that these three measures tap similar abilities and assess similar constructs.

On the other hand, Moser found negative correlations between their SDT scores and scores on the *WAIS Verbal* scale, indicating that the SDT does not measure verbal ability. In addition, she found negative correlations between the SDT and the *Bender Visual Motor Gestalt*, suggesting that they too, measure different constructs. The Bender is a measure of visual-motor skills which asks examinees to copy abstract designs, whereas the SDT gives its lowest score to copying, and its highest score to originality.

In addition, Moser compared SDT mean scores of the disabled and non-disabled adolescents. The learning disabled group received lower scores than the control group to a highly significant degree (at the .001 level) indicating that learning disabled and non-learning disabled adolescents who would be expected to differ in cognition, do differ on the SDT.

Outcome Studies

In the State Urban Education project discussed previously (Silver, 1973), the 34 language- and hearing-impaired children in the experimental group were a randomly selected 50-percent sample of 12 classes in the school. They participated in a weekly art program for 11 weeks in the fall, 9 weeks in the spring. The remaining 34 children who remained with their classroom teachers, served as controls. Their ages ranged from 8 to 15 years. To compare these children with children who had no known impairments, the tasks were also administered once to children in a suburban public school.

In Drawing from Imagination, the pre-test mean score of the experimental group was 8.0; the post-test mean was 11.47; $t = 3.62$, significant at the $p < 0.01$ level with $df = 33$ (two-tailed test). The post-test mean of the control group was 8.44. When the experimental group was compared with the unimpaired group ($N=63$), the unimpaired were superior on the pretest. On the post-test, the experimental group was superior.

In Drawing from Observation, the pre-test mean of the experimental group was 9.37; their post-test mean, 11.43; $t = 3.03$ significant at the $p < 0.05$ level, with $df = 15$. The control group pre-test mean was 8.56; post-test mean, 8.50. The mean for the unimpaired children was 9.63 ($t = .5877$).

In Predictive Drawing, the experimental group again improved significantly at the $p < .01$ level whereas the control group did not improve. The unimpaired children had significantly higher scores on the pretest in both horizontal and vertical orientation. After the art program, no significant difference was found in horizontal orientation. In vertical orientation however, the experimental group was significantly superior to the unimpaired group.

In a subsequent study (Silver & Lavin, 1977), 11 graduate students, using the developmental techniques of the State Urban Education Project, worked with 11 unselected learning-impaired children. After 10 weekly one-hour art sessions, the children showed significant gains in concepts of space, order, and class, as measured by the *SDT* tasks. *T*-tests were used to assess the effectiveness of the developmental program. All the obtained *t* values were statistically significant. The improvement in ability to form groups was significant at the .01 level ($t = 4.79$). Improvement in spatial orientation was significant at the .05 level ($t = 2.42$). Thus the impaired children in the art program improved significantly in the three areas of cognitive development that were the focus of this study.

In a third study, supported by a grant from the National Institute of Education, five graduate students in art therapy worked in five schools with 84 children, ages 7 to 11, who had been selected by school administrators as performing at least one year below school grade level (Silver, Boeve, Hayes, Itzler, Lavin, O'Brien, Wohlberg, & Turner, 1980). During the first 6-week period, all used the same procedures. During the second 6-week period they adapted the procedures to meet the needs of individual students, and devised procedures of their own. As in the earlier studies, the post-test scores of the experimental group showed significant gains over the pre-test scores; however, there were no significant differences between post-test scores of experimental and control groups. A school by school analysis of net change scores (pre-test minus post-test scores) showed significant differences in one school, a school for learning-disabled children. In this school, post-test scores of the experimental group were significantly higher than post-test scores of the control group. This study received the 1980 Research Award from the American Art Therapy Association.

Hearing-impaired and Learning-disabled Children

In addition to studies discussed earlier, responses to the SDT tasks by 27 deaf children (some with multiple handicaps), ages 9 to 11, were compared with the scores of 28 hearing children matched in age and selected at random (Silver, 1996a). No significant differences were found in Drawing from Observation. In Predictive Drawing, however, the deaf children received significantly higher scores in vertical orientation ($(F(1,51)=14.34, p < .001)$ while no significant differences were found in horizontal orientation or ability to sequence. In Drawing from Imagination, the hearing children received significantly higher scores in all subtests: ability to select ($(F(1,51)=12.85, p < .001)$), ability to combine ($(F(1,51)=57.66, p < .000001)$), and ability to represent ($(F(1,51)=30.99, p < .000001)$). Implications and findings are discussed in the 1996 SDT manual, pages 96-101.

The previous study was expanded with a sample of 28 learning-disabled children (Silver, 1996a). To determine which groups differed on which measures, the data were analyzed using ANOVA and LSD. The deaf children scored higher in vertical orientation than either the learning-disabled or unimpaired groups at the .05 level of probability. The unimpaired and deaf groups scored higher than the learning-disabled in left-right relationships (as might be expected with reading difficulties). The unimpaired scored highest in ability to select, combine, and represent. No significant differences were found in Sequencing, Horizontality, or ability to represent depth.

Horovitz-Darby (1991) examined the emotional content of responses by deaf children and their families, basing her treatment on the findings of four tests. She compared their SDT scores with their scores on the *Kinetic Family Drawings* and the *House, Tree, Person* tests (Burns & Kaufman, 1972 and 1987 respectively), and found levels of cognition the same, regardless of the test instrument used.

Age and Gender Differences

In addition to the studies of age and gender differences discussed previously, responses by unimpaired students to the Drawing from Observation and Predictive Drawing tasks were examined for gender differences in concepts of space (Silver, 1996c). The respondents included 33 girls and 33 boys, ages 12 to 15, attending public schools in Nebraska, New York, and Pennsylvania. No significant differences were found. The girls received higher mean scores in horizontality, verticality, depth, and above-below relationships. Boys had higher mean scores in sequencing and left-right relationships. Scores of both genders tended to be consistent and did not show variability.

In a study of attitudes toward self and others, responses to the Drawing from Imagination task by 261 unimpaired children, ages 7 to 10, were examined (Silver, 1992). The children drew pictures about subjects the same gender as themselves to a highly significant degree (.001 level). In drawings about autonomous subjects, boys outnumbered girls, and in drawings about inter-personal relationships, girls outnumbered boys, but these differences were not significant. More boys (19%) than girls (5%) drew assaultive relationships. Virtually no gender differences were found in drawings about caring relationships (16% girls, 14% boys).

A subsequent study (Silver, 1993a and b) again found the tendency to choose same-gender subjects as well as significant age and gender differences in attitudes toward self and others. Subjects included 531 respondents in five age groups: children ages 7 to 10, adolescents ages 13-26 and 17-19, and adults ages 20-50, and 65 and older. Males expressed positive attitudes toward solitary subjects, negative attitudes toward relationships. These differences were significant at the .001 level ($X^2 = 46.971$, $p = .001$). Females expressed positive attitudes toward solitary subjects, both positive and negative attitudes toward relationships ($X^2 = 25.32$, $p < .001$).

Males showed significantly higher frequency than females in drawing about assaultive relationships ($X^2(1) = 9.38$, $p < .01$). However, age and gender differences interacted ($X^2(4) = 13.07$, $p < .05$) resulting in a significant variability in assaultive fantasies for females but not for males. The proportion of older females who drew assaultive fantasies exceeded the proportion of older men who did so, as well as the proportion of other female age groups.

The converse age and gender interaction was found for caring relationships ($X^2(4) = 12.52$, $p < .05$). Whereas females showed significantly higher frequency of caring relationships across age groups, males showed significant age variability. The proportion of younger men who drew pictures about caring relationships exceeded the proportion of younger women as well as the proportion of all other male age groups.

In drawing about relationships, more older men than older women, or any other age or gender group, drew fantasies about stressful relationships. Older women expressed more negative attitudes toward solitary subjects than any other age or gender group. Although negative attitudes predominated among older adults, they also used humor more often than any other age group. Humor was used more often in responses by older men (39%) than older women (16%). The humor of adolescents tended to be aggressive, making fun of others, whereas the humor of older adults tended to be self-deprecating, directed toward themselves, suggesting resilience and the ability (or wish) to survive in spite of adversity. This study received the 1992 research award from American Art Therapy Association.

2. Draw A Story: Screening for Depression (DAS)

DAS and the SDT use virtually the same rating scale and drawing from imagination task, but present different sets of stimulus drawings. The DAS scale was based on the theory that strongly negative response drawings are associated with clinical depression, supported by a study of 350 depressed and nondepressed subjects, as summarized later on. Published in 1988, its purpose was to facilitate the early identification of depressed individuals and provide access to fantasies and associations. A revised edition was published in 1993.

Studies Published After 1993

Identifying and Assessing Self-Images in Drawings by Delinquent Adolescents

This journal article by Silver & Ellison (1995) asked three questions: Do art therapists agree when identifying self-images in drawings by delinquent adolescents? Can they identify self-images without knowing the adolescents who drew them? Do social workers agree when identifying self-images?

Ellison presented Form B of the DAS to 53 boys, ages 13-18, in a residential detention facility. She then discussed their drawings with them individually, and asked if they could identify characters in their drawings who might represent themselves. She recorded their responses together with her own judgments, keeping them in a sealed envelope, then sent the drawings to Silver for blind evaluation. The three sets of evaluations were then sent to a psychologist for analysis. The level of agreement between the 39 adolescents, Ellison, and Silver, was viewed as an index of the validity of the self-image measure.

In addition, three other art therapists and five social workers rated self-images in 10 of the 53 response drawings selected at random. Agreements between the respondents, therapists, and social workers were also analyzed.

Of the 53 adolescents, 39 identified characters in their drawings as themselves. Ellison who knew their histories and conducted the interviews, accurately matched 77% of the respondents. Silver, judging blindly, matched 72%. Inter-scorer agreement between Ellison and Silver, across 53 respondents, was 94.3%. The average agreement among the social workers was 54.0%, among the art therapists, 78.2%, and among the sub-group of three registered art therapists, 93%.

Approximately three of four respondents agreed with Ellison and Silver (74.4%). Five disagreed with both Ellison and Silver who agreed with each other in identifying self images.

Although discussion is preferable, and the more discussion, the more accurate interpretations are likely to be, the findings suggested that discussion

can be bypassed in urgent situations for preliminary screening in order to facilitate early intervention. Part Two of the study presented case studies.

Sex Differences in the Solitary and Assaultive Fantasies of Delinquent and Nondelinquent Adolescents

This journal article examined responses to the *DAS* task by 138 delinquent and nondelinquent adolescents, ages 13 to 17, for differences based on delinquency or gender (Silver, 1996b). The responses were divided into groups based on delinquency, gender, drawings about solitary subjects, and drawings about relationships. The delinquent groups included 11 females and the 53 males who had participated in the previous study (Silver & Ellison, 1996). The nondelinquent (control) groups included 29 males and 45 females attending public schools in Ohio, Florida, and New York.

Mean scores were analyzed and compared. The first analysis evaluated whether gender or delinquency was related to self-images characterized as fortunate, unfortunate, or aggressive. The second analysis evaluated whether the proportions of drawings about solitary subjects or assaultive relationships differed depending on delinquency or on gender.

Significant gender differences were found in both assaultive and solitary content. A group (delinquent vs control) by gender (male vs female) 2x2 ANOVA was conducted on the self-image rating. No significant results were found. In drawings about assaultive relationships, the differences between control males and control females reached significance (Chi-square (1) =9.11, $p < .01$). The difference between male and female delinquents did not reach significance (28.3% males but no females drew assaultive relationships). Aggressive humor was found in 45.4% of drawings about assaults by control males, but not found in any other group.

Drawings about solitary subjects also distinguished between delinquent and control groups, as well as gender. Proportionally more females than males drew sad or helpless solitary subjects (delinquent females 18.1%, control females 17.8%, delinquent males 9.4%, control males 6.9%). When positive attitudes toward solitary subjects were examined, control groups predominated (control females 20%, control males 13.8%, delinquent males 3.7%, delinquent females 0.) The gender difference was large in the control group but small in the delinquent group. Delinquent female drawings were more like the male drawings of both groups. Thus greater gender differences were found among presumably normal adolescents than among delinquent adolescents.

To summarize, gender made a difference in negative responses scored 1 and 2 points. More than twice as many females as males drew sad or helpless solitary subjects (18% females, 8% males). Delinquency made a difference in positive responses scored 4 and 5 points. Nondelinquent males outnumbered delinquent males (14% vs 4%) in portraying fortunate subjects. No delinquent females, but 20% of the nondelinquent females, drew fortunate subjects. The

effect was reversed for assaultive content. Delinquent females were more like males regardless of delinquency.

The finding that no delinquent females expressed positive feelings toward their solitary, self-images suggests that they may be more at risk, or that incarceration dims or extinguishes their wish-fulfilling fantasies. On the other hand, the sample may have been too small. It may also be that males with internal prohibitions against acting out may fantasize more than those who commit assaultive acts, or that incarceration inhibits the expression of assaultive fantasies.

Adapting the Silver Draw a Story Assessment: Art Therapy Techniques with Emotionally Disturbed Children and Adolescents

This journal article by Dunn-Snow (1994) described using *DAS* Form A to assess the needs of severely emotionally disturbed students in elementary and secondary schools of a large urban school district. She also adapted the *DAS* task for use in therapy. She presented a case study in which she used the task to determine whether a high school student was depressed. After he had expressed self-destructive thoughts in responding to the drawing task, she checked school records and discovered that he had history of clinical depression. She then made use of therapy to help him resolve feelings about the death of his father.

Dunn-Snow also used the *DAS* task in working with students who became anxious when asked to do relatively free-choice artwork. She used it to provide a second grader with sufficient structure and support to begin making art, and to break down resistance among students who previously refused to participate.

In addition, Dunn-Snow adapted the *DAS* task for use with groups, and to resolve conflicts. In group therapy with fifth grade boys, she used it to provide structure and set limits, inviting each boy to choose a subject then collaborate with others in the group, combining their images into a single drawing with a common theme, title, and story-line. She noted that in accomplishing this task, her students followed directions, accepted limits, solved problems, made compromises, and communicated effectively.

Unpublished studies

The Draw a Story in Assessment of Abuse

In a presentation at the 1993 Conference of the American Art Therapy Association, Turner (1993) discussed using the *DAS* as part of a five-drawing assessment series with adolescent clients in a psychiatric hospital setting. She used response drawings to assess the probability of a client's having a history of abuse, and if such history existed, to assess the extent of abuse, the meaning the client attached to the abuse, and the effects of abuse on the client's

defenses, coping skills, sense of self, relationships, and world view. She made treatment recommendations to assist ward therapists in working with the client, and after-care recommendations as needed.

Turner asked her clients to respond to a sequence of five drawings as follows: Free Subject, Scribble Drawing, Kinetic Family Drawing, Self-Drawing, and *Draw a Story*, Form A. The *DAS* was placed last because its more cognitive nature provided closure.

Often the themes which emerged in the *DAS* confirmed impressions derived from the preceding four drawings and other sources; however, occasionally, the adolescent who had produced four guarded stereotypical images experienced greater freedom in working with the *DAS* cartoon figures and metaphorical story-telling. Conversely, the client who accessed and expressed painful feelings might use the *DAS* to "regroup" and condense the content of the other four drawings into a safely distanced metaphor.

The client's areas of greatest need may be depicted and described in responses to the *DAS*. Cognitive schemas relating to the need may also be apparent. Beliefs concerning attribution of causality, locus of control, concerns about self-protective abilities, trust/mistrust, self value and community attachments, suggested by *DAS* responses, became topics for discussion in the assessment interviews. During the discussion, whether the client remains metaphorical or relates the *DAS* drawing to events in his/her own life, the therapist has the opportunity to begin addressing treatment needs, confirming reality, and laying the groundwork for future therapy.

Assessment of Brain-Injury Patients with the Draw a Story Instrument,

In a presentation at the 1993 Conference of the American Art Therapy association, Wilson discussed working with inpatients and outpatients who had sustained brain injuries in accidents, assaults, strokes, and aneurysms. She used *DAS* Form A to assess skills and emotional outlook. To assess word-finding difficulty, identification skills, and speaking ability, she presented the stimulus drawings mounted on a cardboard background, asking patients to identify each image. To assess ability to establish relationships and to create and organize images, she noted the patient's ability to combine subjects and show something happening between them. She also examined executive functioning, reasoning, problem-solving abilities, and field neglect problems which became evident if the patient drew closer to one side of the page or the other. During the story-writing stage of the task, she observed reading and writing skills.

As a member of the clinical treatment team trying to assess a patient's strengths and weaknesses, Wilson found that *DAS* served to reinforce the findings of other therapists, and in many instances, contributed information about emotional outlook, depression, and fantasies. She found that patients almost always projected themselves into their drawings and stories, offering material about their emotional inner lives. They discussed issues of low

self-esteem, concerns about adjustment to disability, and depression over losses.

Master's Theses

Brandt (1995) compared *DAS* responses by adolescent sex offenders, typical adolescents, and depressed adolescents, and examined the importance of visual arts in treating and assessing the offenders. Participants were 14 male sex offenders in a residential facility, ages 12 to 18, averaging 16 years. Their mean score on the *DAS* (1.89) was compared with the scores of typical adolescents (2.73) and depressed adolescents (3.14). The findings suggested that offenders are likely to be depressed, and to perceive themselves and their worlds in negative ways. The findings also suggested that art expression enables those who work with offenders to tap into emotionality, and therefore is useful in treatment programs which tend to emphasize cognition and behavior.

Coffey (1995) observed that male and female patients in psychiatric units of two hospitals seemed to have different needs, and that gender should be considered in planning therapeutic treatment. Males seem more reticent to reveal themselves to anyone. Females seem less apt to recognize their rights or self-worth, and fear that moving toward one goal forecloses other goals. Some patients were very agitated, some abused equipment or themselves, others displayed a heavy, pervasive sadness. She also observed that projective drawing appears less threatening to evasive or resistant patients than tests like the *TAT* or *Rorschach*. Coffey proposed an art therapy program for hospitalized depressed women. It included weekly individual and group sessions, beginning with an interview, and the use of both *DAS* and the *Gantt Formal Elements Art Therapy Scale* to establish rapport, discover areas of patient interests, estimate abilities, and observe defense mechanisms.

Pannunzio (1991) theorized that the depression of suicidal, hospitalized adolescents in an acute psychiatric unit could be reduced, relieved, and unmasked by expressing, clarifying, and identifying feelings. She used the *DAS* and the *Cohen Diagnostic Drawing Series* as pre-post test evaluations. The case study of a 15-year old sexually abused female demonstrated her use of art therapy to ameliorate various aspects of depression.

Linebaugh (1996) used Form B of the *DAS* as a pre-post test to assess the effectiveness of Romero's scrapbook task in increasing the level of the self/environment perceptions of hospitalized, chronically ill children. Participants were 4 boys and 5 girls, ages 6 to 11, on IV hook-ups. All procedures took place in a single one-day session.

Wilson (1990) presented case histories and the procedures she used to assess and treat depressed, suicidal, and hospitalized adolescents. She

administered the *DAS* to 8 patients during the first session of a biweekly treatment program, and again three months later to gain insight into their emotional outlook and how their senses of self and environment were evolving. Of 13 responses to the task, 12 had negative to severely frightening elements. Only one response was positive. Wilson concluded that the *DAS* was a useful measure of emotional states, offering specific information about how patients viewed their situations.

Summaries of Previous Research

It has been erroneously stated that the *DAS* manual does not provide statistical information. In responding to this claim, the manual's reliability and validity studies are summarized below. For detailed information the reader is referred to the 1988 and 1993 manuals or the original reports listed in the References.

Reliability

In a study of scorer reliability, three judges independently, and blindly, scored 20 unidentified responses to the Form A set of stimulus drawings, chosen at random from four groups of children and adolescents who had been identified previously as unimpaired, clinically depressed, learning-disabled, or emotionally disturbed with nondepressive psychopathology. Correlations were significant: between judges A and B, .806, $p < .001$; between judges A and C, .749, $p < .001$; and between Judges B and C, .816, $p < .001$.

In a second study, two judges scored responses to the Form B set of stimulus drawings by 33 children, adolescents, and adults who responded twice without a time interval. Some were unimpaired, others were depressed, learning disabled, or emotionally disturbed. Their responses, identified only by number, were scored independently by both judges, first and second drawings scored on different days. Separate interscorer correlations were calculated for the first 33 responses (marked A), the second 33 responses marked B, and the 66 combined A and B responses. Correlations again were significant. The correlation for A-scores was .83943, $p < .0.000$; for B-scores, .7454, $p < 0.000$; for combined A and B scores, .80806, $p < 0.000$.

In a study of retest reliability, three art therapists administered Form A to 31 children and adults on two occasions: after a one-week interval to eight children, without a time interval to six adolescents, and without a time interval to 17 adults whose responses were identified only by number and assigned at random. Significant correlations were found between first and second responses: .70262, $p < 0.000$ by the first 8 subjects, and .93277, $p < .05$ by the remaining combined 23 subjects.

Validity

The first study asked whether strongly negative responses to the DAS task are associated with clinical depression (Silver, 1988). Twenty-four art therapists, teachers, and school counselors presented the task to 350 impaired and unimpaired children and adults. The impaired groups included 35 depressed children and adolescents in hospitals and special schools, 15 hospitalized depressed adults, 74 children and adolescents with nondepressive psychopathology, 64 learning-disabled adolescents, and 18 hearing-impaired children and adolescents. The nondepressed groups included 27 older adults living independently in their communities and 117 children and adults attending urban and suburban, public and private, elementary and secondary schools in Montana, New Jersey, New York, Oregon, and Pennsylvania.

Approximately 63% of the depressed children and adolescents responded with strongly negative fantasies scored 1 point, compared with approximately 10% of the nondepressed students, 13% of the depressed adults, 19% of the emotionally disturbed, 30% of the learning disabled, 7% of the older adults, and none of the hearing-impaired children and adolescents.

A chi-square analysis found that the proportion of depressed children and adolescents scoring 1 point was significantly greater than the proportion of any other group scoring 1 point, as shown in Table 1.

Table 1. *Analysts of Differences in the Proportion of Strongly Negative Responses Among Depressed, Normal, Emotionally Disturbed, Learning Disabled, and Hearing-impaired Children, Adolescents, and Adults*

	Depressed Children & Adolescents	Normal	
1 point	22	12	
2 or more points	13	105	$\chi^2 = 43.2$ $p < .0005$
	Depressed Children & Adolescents	Emotionally Disturbed	
1 point	22	14	
1 or more points	13	83	$\chi^2 = 20.6$ $p < .0005$
	Depressed Children & Adolescents	Learning Disabled	
1 point	22	19	
2 or more points	13	45	$\chi^2 = 11.1$ $p < .001$
	Depressed Children & Adolescents	Deaf	
1 point	22	0	
2 or more points	13	18	$\chi^2 = 19.5$ $p < .0005$
	Depressed Children & Adolescents	Elderly	
1 point	22	2	
2 or more points	13	25	$\chi^2 = 20.0$ $p < .0005$
	Depressed Children & Adolescents	Depressed Adults	
1 point	22	2	
2 or more points	13	13	$\chi^2 = 10.4$ $p < .005$

These findings indicate that strongly negative responses to the *DAS* task, characterized by the score of 1 point, are associated with childhood or adolescent depression. They suggest that the *DAS* measure can serve as a first step in identifying some, but not all depressed children and adolescents. Although strongly negative responses did not necessarily indicate depression, and conversely, positive responses did not exclude depression, the findings suggest that a child or adolescent who responds with strongly negative fantasies may be at risk, and that thorough investigation would be worthwhile.

A second study was conducted comparing responses to the *DAS* task by 47 depressed and 60 nondepressed adolescents and adults (Silver, 1993a). A 2×3 Chi-square analysis found that the depressed males tended to respond with negative themes whereas the depressed females tended to respond with ambiguous, ambivalent, or unclear themes (Chi-square (1,2)=8.61, $p < .05$). Depressed men responded with more negative themes than nondepressed men (Chi-square (1,2)=4.96, $p < .10$), a difference considered borderline. The nondepressed men and women did not differ significantly.

It was also found that responses to the self-report questions on the *DAS* drawing form tended to be inconsistent with emotional content scores. Many respondents who were hospitalized for clinical depression indicated that they felt "O.K." or "very happy." This inconsistency may reflect the effects of medication, denial, reticence, wish-fulfillment, or possibly masked depression.

3. Correlations Between the *Silver Drawing Test* and *Draw a Story*

What is the relationship between the *DAS* and *SDT*? Both use virtually the same task and rating scale for assessing emotional content, but different stimulus drawings. Is this difference important? If not, the two measures might be interchangeable. Therapists who use *DAS* might also use the *SDT* cognitive scale, and *SDT* users might screen for depression. In search of answers, the responses to both measures by children and adults were examined to determine whether the two measures assess the same emotional and cognitive constructs.

Background

Originally, the sketches were meant to encourage deaf children to express thoughts and feelings, during the 1960s when manual languages were forbidden in schools. The sketches that elicited the most expressive responses became stimulus drawings. Some were reserved for the *SDT*, others became the 50 stimulus drawings of the first measure, *Stimulus Drawings and Techniques*, (Silver, 1982/1986/1989/1991). From these stimulus drawings, the *DAS* arrays were chosen later on.

The original *Stimulus Drawing* rating scale ranged from strongly negative to strongly positive themes. To determine its reliability, three registered art therapists independently scored 24 responses, four selected at random from each of six groups of children and adults. In an analysis of interscorer agreement, correlation coefficients ranged between .924 and .549 as measured by Finn's *r*.

The stimulus drawings were used in therapy with emotionally disturbed clients and stroke patients (Sandburg, Silver, & Vilstrup (1984), then in assessment. Gender differences were found in portraying Principal Subjects and Environments across four ages groups - third graders, high school seniors, younger adults, and older adults (Silver, 1987). Males tended to give higher ratings to Principal Subjects than to Environments whereas female ratings showed no significant differences. Both males and females portrayed principal subjects more positively than environments to significant degrees. Age differences approached but did not achieve significance.

The sample of girls in the third grade received the lowest scores for both Principal Subject and Environment whereas girls in high school received the highest scores among all five age groups, suggesting that self-confidence peaks as girls reach the age of 17 or 18.

Relationships between the *Stimulus Drawings* and *SDT* measures were also examined. Twelve of 24 drawings were responses to the *Stimulus Drawings* task while 12 were responses to the *SDT*. No significant differences in mean ratings were found ($t(22) = .8$), suggesting the possibility that the two measures assess the same construct.

The stimulus drawings seem to have different meanings for different individuals. Some associate the knife with a weapon, while others associate it with wedding cakes. The chick has been portrayed in many ways - sad, domineering, vulnerable, and belligerent, as shown in Figures 4 to 7.

Fig. 4. "You'r dead meat,"
by an 8-year old boy.



Fig. 5. "The Indian that killed the chicken,"
by another 8-year old boy.

The Indian that killed the chicken

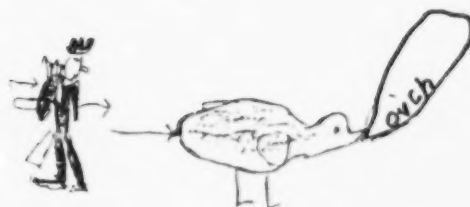


Fig. 6. "A House to Remember,"
by a older woman



Fig. 7. "Growling won't help you a bit, to
me your just a juicy worm," by an older man



Method

To determine whether the *SDT* and *DAS* measures assess the same constructs, both tasks were presented without a time interval, to samples of children and senior adults. Half of each group responded first to the *SDT* task, then to the *DAS* task; the other half responding first to the *DAS*, then to the *SDT*.

Responses were scored for cognitive content, as measured by the *SDT* guidelines, shown in Table 2. The responses were also scored for emotional content, as measured by the rating scale in both measures. Correlational analysis was used to investigate the relationships between test scores.

The children who participated included 7 boys and 12 girls, ages 7 to 8, in the second grade of a public elementary school in California. A classroom teacher administered the task, supervised by JoAnn Ellison, ATR. The adults included 7 men and 12 women in a retirement residence in Florida who had participated anonymously. Their ages ranged from "65 plus" to 85 years, with a mean age of 80.89 years.

Table 2. SDT Guidelines for Scoring the Cognitive Content of Drawings from Imagination

Ability to Select (the content or message of a drawing and/or story)

- 0 points: No evidence of selecting.
- 1 point: *Perceptual level*; single subjects or subjects are unrelated in size or placement.
- 2 points: Subjects may be related in size or placement, but there is no interaction.
- 3 points: *Functional level*; shows what subjects do or what is done to them; concrete.
- 4 points: descriptive rather than abstract or imaginative.
- 5 points: *Conceptual level*; imaginative, well-organized idea, implies more than is visible, or shows ability to deal with abstract ideas. Art skills are not important here.

Ability to Combine (the form of a drawing)

- 0 points: single subject, no spatial relationships.
- 1 point: *Proximity*; subjects float in space, related by proximity rather than a baseline.
- 2 points: attempts to show relationships, such as arrows or dotted lines.
- 3 points: *Baseline*; subjects are related to one another along a baseline (real or implied).
- 4 points: Beyond the baseline level, but at least half the drawing area is blank.
- 5 points: *Overall coordination*; depicts depth or takes into account the entire drawing area, or includes a series of two or more drawings.

Ability to Represent (creativity in form, content, title, or story)

- 0 points: No evidence of representation.
- 1 point: *Imitative*; copies stimulus drawings or uses stick figures or stereotypes.
- 2 points: Beyond imitation, but drawing or ideas are commonplace.
- 3 points: *Restructured*; changes or elaborates on stimulus drawings or stereotypes.
- 4 points: Beyond restructuring, moderately original or expressive.
- 5 points: *Transformational*; highly original, expressive, playful, suggestive, or uses metaphors, puns, jokes, satire, or double meanings.

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Results

Emotional Content

Scores on both the SDT and DAS were correlated significantly ($r = 0.57, p < .0001$). The only difference found was between age groups: more than 25% of the children drew moderately positive fantasies (4 points) compared with 6% and 11% respectively of the adults.

One woman age 83, responded with strongly negative fantasies, both scored 1 point. Responding first to the DAS task, she chose the stimulus drawing seascape, then drew a solitary person on a plane without fuel, falling into the sea (Figure 8). Responding to the SDT task, she drew a solitary figure on a sailboat, washed overboard in a storm (Figure 9).

Figure 8. Response to the *DAS* task by a woman, age 83. "I'm in an airplane without fuel headed downward to the sea. I can't imagine what I'd be thinking so I can't draw it."



Figure 9. Response to the *SDT* task by the same woman. "I was on a sailboat wrecked in a storm. I was washed over board. I can only imagine sinking wondering what...No way to draw that -because I don't have any image of dark space."



Since she used the first person singular, and imagined her subjects in life-threatening danger, without hint of escape or rescue, her drawings seem to be self-images and suggest that she may have been depressed. There was no opportunity for follow-up, however, because the adults had participated anonymously.

Cognitive Content

Responses for cognitive content were also consistent across test scores ($r = .66, p < .0001$). Within test scores (e.g. *SDT* Emotional Content versus Cognitive Content) no consistency was found (for *SDT*, $r = .13, n.s.$, and for *DAS*, $r = 0.02, n.s.$). Figures 8 and 9 scored 5 points in each of the cognitive skills under consideration - ability to select, combine, and represent.

Discussion

The results lend evidence to the validity of the emotional content and cognitive content scores across test formats. The size of the correlations between *SDT* and *DAS* scores indicates that the two measures assess the same constructs. These findings suggest that the *SDT*, like *DAS*, can be used to screen for depression, and that *DAS*, like the *SDT*, can be used to assess levels of ability to select, combine, and represent.

It seems evident that respondents create their own meanings. It would seem to follow that differences between stimulus drawings may be irrelevant. What seems to matter is that they trigger associations with past experiences, and that responses provide access to fantasies, attitudes, and cognitive skills.

It was also noted that the *DAS* self-reports tend to be inconsistent with Emotional Content scores. This observation suggests that it may be worthwhile to examine responses for masked depression, and to present the tasks to larger samples of children, adolescents, and adults.

References

- Allessandrini, C.D.; Duarte, J.L.; Dupas, M.A.; Bianco, M.F., 1996. Standardization of the *SDT* in Brazil, Preconference Course presentation, 1996 Conference of the American Art Therapy Association.
- American Psychiatric Association, 1994. *Diagnostic and statistical manual of mental disorders*, (III). Washington, D.C.
- Beck, A.T., 1978. *Depression inventory*, Philadelphia Center for Cognitive Therapy.
- Blasdel, L., 1997. *Critical thinking skills developed through visual art experiences*, Unpublished master's thesis, Emporia State University, KS.
- Brandt, M., 1995. *Visual Stories: a comparison study utilizing the Silver art therapy assessment with adolescent sex offenders*. Unpublished master's thesis, Ursuline College, Pepper Pike, Ohio.
- Bruner, J., 1966. (Ed), *Studies in Cognitive Growth*, New York: John Wiley & Sons.

- Coffey, C.M., 1995. *Women, major depression, and imagery*, Unpublished master's thesis, Southern Illinois University, Edwardsville, IL.
- Dunn-Snow, P., 1994. Adapting the Silver Draw A Story Assessment: Art therapy techniques with children and adolescents, *American Journal of Art Therapy*, 33 (35-36).
- Henn, K., 1990. The effects of an integrated arts curriculum on the representation of spatial relationships. Unpublished master's thesis, Buffalo State College, NY.
- Hiscox, A.R., 1990. *An alternative to language-oriented IQ tests for learning-disabled children*. Unpublished master's thesis, College of Notre Dame, Belmont, CA.
- Horovitz-Darby, 1996. Preconference Course Presentation, 1996 Conference of the American Art Therapy Association.
- Hunter, G., 1992. *An examination of some individual differences in information processing, personality, and motivation with respect to some dimensions of spatial thinking or problem solving in TAFE students*. Unpublished master's thesis, The University of New England, School of Professional studies, Armidale, Australia.
- Jakobson, R, 1964. Linguistic typology of aphasic impairment. In A. DeReuck and M. O'Conner (Eds), *Disorder of Language*. Boston: Little, Brown & Co.
- Linebaugh, A.J., 1996. *What the school age child perceives in a hospital environment: the DAS instrument with physically ill children*. Unpublished master's thesis, Long Island University, C.W.Post Campus, Brookville, NY.
- McGee, M., 1979. Human spatial abilities: Psychometric studies and environmental influences, *Psychological Bulletin*, 86 (5) 889-918.
- Marshall, S.B., 1988. *The use of art therapy to foster cognitive skills with learning disabled children*. Unpublished master's thesis, Pratt Institute, School of Arts and Design, Brooklyn, NY.
- Miller, W.I., 1997. *The anatomy of disgust*. Cambridge, MA: Harvard University Press.
- Moir, A. & Jessel, D., 1992. *Brain Sex*. NY: Dell Publishing.
- Moser, J., 1980. *Drawing and painting and learning disabilities*. Unpublished doctoral dissertation, New York University, NY.
- Pannunzio, D.M., 1991. *Short-term adjunctive art therapy as a treatment intervention for depressed hospitalized youth*. Unpublished master's thesis, Ursuline College #1031, Pepper Pike, Ohio.
- Piaget, Jean, & Inhelder, 1967. *The Child's Conception of Space*. New York: WW Norton & Co.
- Piaget, J. 1970. *Genetic Epistemology*. New York : Columbia University Press.
- Sandburg, Silver, & Vilstrup, 1984. The stimulus drawing technique with adult psychiatric patients, stroke patients, and adolescents in art therapy. *Art Therapy: Journal of the American Art Therapy Association*, 1 (3) 132-140.
- Silver R., and Ellison, J., 1995. Identifying and assessing self-images in drawings by delinquent adolescents, *The Arts in Psychotherapy*, 22 (4) 339-352.
- Silver, R. and Lavin, C. 1977. The role of art in developing and evaluating cognitive skills, *Journal of Learning Disabilities*, 10 (7) 416-424. ERIC ED # 101 654, EJ # 171 839.
- Silver, R., Lavin, C., Boeve, E., Hayes, K., Itzler, J., O'Brien, J., Temer, N., Wohlberg, P. 1980. *Assessing and developing cognitive skills in handicapped children through art*. National Institution of Education Project # G 79 0081. NY: College of New Rochelle. ERIC ED #209878.
- Silver, R. 1973. *A study of cognitive skills development through art experiences*. New York City Board of Education. NYState Urban Education Project # 147 232 101. ERIC Ed # 084 745, EC 060 575.
- Silver, R. 1975a. Using art to evaluate and develop cognitive skills. Paper presented at the 1975 AATA Annual Conference. ERIC ED # 116 401. EC 080 793.
- Silver, R. 1975b. Children with communication disorders: cognitive and artistic development, *American Journal of Art Therapy*, 14 (2) 39-47.
- Silver, R. 1975c. Clues to cognitive functioning in the drawings of stroke patients, *American Journal of Art Therapy*, 15 (10) 3-8.

- Silver, R. 1976. Using art to evaluate and develop cognitive skills: Children with communication disorders and children with learning disabilities. *American Journal of Art Therapy*, 16 (1) 11-19.
- Silver, R. 1978/ 1986/1989. *Developing cognitive and creative skills through art: Programs for children with communication disorders*. Baltimore: University Park Press. NY: Ablin Press. ERIC ED # 209 878.
- Silver, R., 1979. *Art as Language for the handicapped*. Washington, D.C. The Smithsonian Institution. Catalogue of an exhibition circulated 1979-1982. ERIC ED # 185 774.
- Silver, R., 1973. *Cognitive skills development through art experiences*, NYC Board of Education, NY State Urban education project # 147 232 101. ERIC ED # 084 745.
- Silver, R. 1981/1982/1986/1989/1991. *Stimulus drawings and techniques in therapy, development, and assessment*. New York: Trillium Books, Florida: Ablin Press Distributors.
- Silver, R., 1982. Developing cognitive skills through art. In L.G.Katz (Ed.), *Current topics in early childhood education*, Vol 4 (pp. 143-171). NJ: Ablex Publishing Co. ERIC ED # 207674.
- Silver, R. 1982/1986/1989/1991. *Stimulus Drawings & Techniques*, NY: Trillium Books; Ablin Press Distributors, Sarasota, FL.
- Silver, R. 1983/1990/1996a. *Silver Drawing Test of Cognition and Emotion*. WA: Special Child Publications; New York: Ablin Press; Florida: Ablin Press Distributors.
- Silver, R. 1987/1988/1993a. *Draw a Story: Screening for Depression and Age or Gender Differences*. New York: Trillium Press; Florida, Ablin Press Distributors.
- Silver, R., 1987. Sex differences in the emotional content of drawings, *Art Therapy: Journal of the American Art Therapy Association*, 4 (2) 67-77.
- Silver, R. 1988. Screening children and adolescents for depression through Draw a Story. *American Journal of Art Therapy*, 26 (4) 119-124.
- Silver, R. 1992. Gender differences in drawings, a study of self-images, autonomous subjects, and relationships, *Art Therapy: Journal of the American Art Therapy Association*. 9 (2) 85-92.
- Silver, R. 1993b. Age and gender differences expressed through drawings, *Art Therapy*, 10 (3) 159-168.
- Silver, R. 1993c. Assessing the emotional content of drawings by older adults, *American Journal of Art Therapy*, 32, 46-52.
- Silver, R. 1996b. Sex differences in the solitary and assaultive fantasies of delinquent and nondelinquent adolescents, *Adolescence*, 31 (123) 543-552.
- Silver, R., 1996c. Gender differences and similarities in the spatial abilities of adolescents, *Art Therapy: Journal of the American Art Therapy Association*, 13 (2) 118-120.
- Silver, R., 1997. Sex and Age differences in attitudes toward the opposite sex, *Art Therapy: Journal of the American Art Therapy Association*, 14 (4), 268-272.
- Silver, R., 1998. Gender parity and disparity in spatial skills: Comparing horizontal, vertical, and other task performances, *Art Therapy: Journal of the American Art Therapy Association* 15 (1).
- Turner, C., 1993. The Draw A Story in assessment of abuse, Preconference Course Presentation at the 1993 Conference of the American Art Therapy Association.
- Wilson, M.F., 1990. *Art therapy as an adjunctive treatment modality with depressed hospitalized adolescents*. Unpublished master's thesis, Ursuline College, Pepper Pike, OH. University Microfilms #5420.
- Wilson, M.F., 1993. Assessment of brain injury patients with the Draw a Story Instrument, Preconference Course Presentation at the 1993 Conference of the American Art Therapy Association.

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